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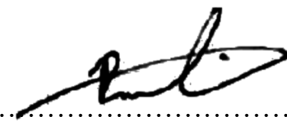

INFRASTRUCTURE ENGINEERING

ELECTRICAL DEPARTMENT SPECIFICATION

SPECIFICATION FOR A OHTE DYNAMOMETER

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Transnet Freight Rail - Infrastructure

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1. Scope

This specification stipulates Transnet Freight Rail's requirements for the supply and delivery of a mobile OHTE dynamometer with a measuring range of at least 100kN inclusive of accessories.

2. Tenderers

Tenderers shall indicate compliance or non-compliance with the specification. To elaborate their reason for non-compliance of a clause a separate sheet may be used to clarify the extent of non-compliance to specific clause.

3. Operating Conditions

Equipment to be supplied against this specification shall be suitable for satisfactory operation under the following conditions

3.1. Atmospheric condition

- 4.1.1. Altitude : 0 – 1800m above sea level
- 4.1.2. Ambient Temperature : -10 ° C to 40° C
- 4.1.3. Relative Humidity : As high as 90 percent
- 4.1.4. Ambient Storage Temperature : -10° C to 50° C

3.2. Mechanical Service Conditions

- 3.2.1. The supplier of the dynamometer must take into consideration the nature of terrain, which will be encountered. The terrain will vary from tar roads to the roughest gravel roads, which can be encountered. Hence the equipment shall be store in a rugged carry case.

3.3. Electrical service condition

- 3.3.1. The equipment shall be powered solely by battery source, without requiring any connection from an external power source.
- 3.3.2. The equipment shall have an operational range of at least 48 hours continuously.

4. Technical Requirements

- 5.1. It is essential that the equipment is designed and manufactured for very high reliability and long life with a minimum of maintenance requirements. All equipment shall be user friendly and robust.
- 5.2. The equipment shall have a maximum measuring range of **10 tons / 100 kN**, making it suitable for high-capacity weighing and tension force testing.
- 5.3. The measurement resolution shall be **5 kg / 50 N**, ensuring precise and consistent readings across the measurement range.
- 5.4. The equipment shall be capable of accurately measuring weights starting from a minimum of **100 kg**

- 5.5. The device shall be lightweight and portable, with a total weight (including the shackle) of not more than **15 kg**.
- 5.6. The instrument shall have an accuracy of **$\pm 0.1\%$ of the measurement range**
- 5.7. The tare range shall support up to **20% of the measurement range**
- 5.8. The equipment shall feature an LCD with a **22 mm / 0.9 in** digit height, ensuring clear and easy readability under varying lighting conditions.
- 5.9. The device shall provide selectable units of measurement, including **kg, t, N, and kN**, to cater to user preferences and international standards.
- 5.10. The device shall operate at a sampling rate of **2.5 Hz**, offering real-time data updates during operation.
- 5.11. Despite its high measurement capacity, the device shall be compact and portable, making it easy to transport and operate in various locations
- 5.12. The instrument shall include advanced features such as but not limited to the following:
 - 5.12.1. Peak Hold Function: To capture and hold the highest measured value.
 - 5.12.2. Summation Function: To calculate the total weight or force from multiple measurements.
 - 5.12.3. Adjustable Gravitation Range: To account for variations in gravitational force based on location.

5. General Requirements

- 5.1 The equipment shall be supplied with a **remote control, indicator, shackles**, and a **carrying case**, ensuring complete readiness for operation.
- 5.2 The tenderer shall supply the calibration certificate on the day of delivery of the equipment
- 5.3 The tenderer shall supply the certificate regarding the type of tests conducted.
- 5.4 Sufficient training must be provided to all operators of the equipment
- 5.5 The manuals will be provided on the day of the delivery of the equipment